

538

DART AEROSPACE LTD		Work Order:	24131
Description: Dart 13-Man Shoulder Harness Kit (205/212/214/412)		Part Number:	D3196-4 D412-702-011
04.02.23 10-11			
Dwg: D3195 Rev. A; D3196 Rev. A; D3197 Rev. A I		Qty:	15 Kits
Ref: D412-702 Rev.A page 9			Page 1 of 4

Step	Location	Procedure	By	Date	Qty
1	DC	Issue Traveler Note: D412-702-011 Kit consists of (2) D3195-041; (2) D3195-043; (1) D3196-1; (1) D3196-3; (1) D3196-4; (2) D3197-041.	u	050831	15
2	DC	Photocopy bluefile and create labels per PPP D412-702-011 CHG001			
3	MV	Cut (2) blanks per (1) D412-702-011 Kit Cut blanks: (0.75" x 2.00") x 3.60" long Bar Material: 6061-T6/T651 (QQ-A-200/8) or (QQ-A-225/8) or (QQ-A-250/11) (M6061T6B0.750x02.000) Identify for D3195-1 Batch:			
4	MV	Cut (2) blanks per (1) D412-702-011 Kit Cut blanks: (1.50" x 1.25") x 3.60" long Bar Material: 6061-T6/T651 (QQ-A-200/8) or (QQ-A-225/8) or (QQ-A-250/11) (M6061T6B1.500x01.250) Identify for D3195-3 Batch:	N/A	u	
5	MV	Cut blank: (0.75" x 1.50") x 26.200" long Bar Material: 6061-T6/T651 (QQ-A-200/8) or (QQ-A-225/8) (M6061T6B0.750x01.500) Identify for D3196-1 Batch:			
6	MV	Cut (2) blanks per (1) D412-702-011 Kit Cut blanks: (0.75" x 1.50") x 34.750" long Bar Material: 6061-T6/T651 (QQ-A-200/8) or (QQ-A-225/8) (M6061T6B0.750x01.500) Identify (1) for D3196-3 Identify (1) for D3196-4 Batch: M18453 M15031	SA	050902	15
7	MV	Cut (2) blanks per (1) D412-702-011 Kit Cut blanks: 29.125" long Round Bar Material: 7075-T73 (QQ-A-200/11) or (QQ-A-225/9) 1" OD (M7075T73R1.000) Identify for D3197-1 Batch:			
8	MV	Machine D3195-1 as per Folio FA334 and Dwg D3195 Identify as D3195-1			
9	QC2	Inspect parts as they come off the CNC machine			
10	MV	Deburr and Tumble			
11	QC8	Second check	N/A	u	
12	MV	Machine D3195-3 as per Folio FA334 and Dwg D3195 Identify as D3195-3			
13	QC2	Inspect parts as they come off the CNC machine			
14	MV	Deburr and Tumble			
15	QC8	Second check			

RELEASED

07.01.08

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Mfg / Design Mgr	Approval QC Inspector

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Design Mgr	Approval QC Inspector
			Initial Design Mgr	Action Description Design Mgr	Sign & Date			

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes ☐ No ☒ DQA: 17 Date: 05/10/26

NOTE: Date & initial all entries

QA: N/C Closed: _____ Date: _____

DART AEROSPACE LTD		Work Order:	24131
Description: Dart 13-Man Shoulder Harness Kit (205/212/214/412)		Part Number:	D3196-4
Dwg: D3195 Rev. A; D3196 Rev. A; D3197 Rev. A		Qty:	15 Kit(s)
Ref: D412-702 Rev.A page 9		Page 2 of 4	

Step	Location	Procedure	By	Date	Qty
16	MV	Machine D3196-1 as per Folio FA339 and Dwg D3196 Identify as D3196-1			
17	QC2	Inspect parts as they come off the CNC machine			
18	MV	Deburr			
19	QC8	Second check			
20	MV	Machine D3196-3 as per Folio FA339 and Dwg D3196 Identify as D3196-3			
21	QC2	Inspect parts as they come off the CNC machine			
22	MV	Deburr			
23	QC8	Second check			
24	MV	Machine D3196-4 as per Folio FA339 and Dwg D3196 Identify as D3196-4			
25	QC2	Inspect parts as they come off the CNC machine	SN	05.09.11	15
26	MV	Deburr	SD	05.09.11	15
27	QC8	Second check	SD	05.09.11	15
28	MV	Machine D3197-1 as per Folio FA340 and Dwg D3197 Note: Need to be faced to size Identify as D3197-1	BG	05.09.12	15
29	QC2	Inspect parts as they come off the CNC machine			
30	MV	Deburr			
31	QC8	Second check			
32	FP	Chemical Conversion Coat as per QSI 005 4.1 D3195-1/-3; D3196-1/-3/4; D3197-1	FC	05/09/20	15
33	FP	Powder Coat Grey Sandtex (Ref: 4.3.5.6) as per QSI 005 4.3 D3195-1/-3; D3196-1/-3/4; D3197-1	FC	05/09/20	15
34	QC3	Inspect work to Step 33.	ml	05.09.21	15
35	GA	Cut (2) blanks per (1) D412-702-011 Kit Cut blanks: (4.986" x 0.500") x 0.125" thick as per Dwg D3195 Material: D3195 Rubber Punch holes as per Dwg Identify as D3195-5 Batch: _____			
36	GA	Cut (2) blanks per (1) D412-702-011 Kit Cut blanks: (4.986" x 1.000") x 0.125" thick as per Dwg D3195 Material: D3195 Rubber Punch holes as per Dwg Identify as D3195-7 Batch: _____			

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Mfg / Design Mgr	Approval QC Inspector

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Design Mgr	Approval QC Inspector
			Initial Design Mgr	Action Description Design Mgr	Sign & Date			

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

NOTE: Date & initial all entries

QA: N/C Closed: _____ Date: _____

DART AEROSPACE LTD		Work Order:	24131
Description: Dart 13-Man Shoulder Harness Kit (205/212/214/412)		Part Number:	D3196-4 D412-702-011
04.02.23			
Dwg: D3195 Rev. A; D3196 Rev. A; D3197 Rev. A1		Qty:	15 Kits
Ref: D412-702 Rev. A page 9			Page 3 of 4

Step	Location	Procedure	By	Date	Qty																																																																				
37	GA	Bond D3195-5 into D3195-1 as per Dwg D3195 Pick: <table border="0"> <tr> <td><u>Qty</u></td> <td><u>Description</u></td> <td><u>Batch</u></td> </tr> <tr> <td>A/R</td> <td>Contact Cement</td> <td></td> </tr> </table> Identify as D3195-041	<u>Qty</u>	<u>Description</u>	<u>Batch</u>	A/R	Contact Cement																																																																		
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A/R	Contact Cement																																																																								
38	GA	Bond D3195-7 into D3195-3 as per Dwg D3195 Pick: <table border="0"> <tr> <td><u>Qty</u></td> <td><u>Description</u></td> <td><u>Batch</u></td> </tr> <tr> <td>A/R</td> <td>Contact Cement</td> <td></td> </tr> </table> Identify as D3195-043	<u>Qty</u>	<u>Description</u>	<u>Batch</u>	A/R	Contact Cement																																																																		
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A/R	Contact Cement																																																																								
39	QC5	Inspect work to Step 38																																																																							
40	GA	Assemble (2) D3197-041 as per Dwg D3197. (Note: D3197-1 is on BOM as material from Step 7) Pick: <table border="0"> <tr> <td><u>Qty</u></td> <td><u>Part Number</u></td> <td><u>Description</u></td> <td><u>Batch</u></td> </tr> <tr> <td>4</td> <td>D2690-5</td> <td>Lanyard</td> <td></td> </tr> <tr> <td>2</td> <td>D3197-1</td> <td>Bar</td> <td></td> </tr> <tr> <td>4</td> <td>D3242-1</td> <td>Tag</td> <td></td> </tr> <tr> <td>12</td> <td>AN960JD10</td> <td>Washer</td> <td></td> </tr> <tr> <td>4</td> <td>DARS-004</td> <td>Pip Pin</td> <td></td> </tr> <tr> <td>4</td> <td>MS21042L3</td> <td>Nut (or -3)</td> <td></td> </tr> <tr> <td>4</td> <td>MS27039-1-24</td> <td>Bolt</td> <td></td> </tr> </table> Identify as D3197-041	<u>Qty</u>	<u>Part Number</u>	<u>Description</u>	<u>Batch</u>	4	D2690-5	Lanyard		2	D3197-1	Bar		4	D3242-1	Tag		12	AN960JD10	Washer		4	DARS-004	Pip Pin		4	MS21042L3	Nut (or -3)		4	MS27039-1-24	Bolt																																								
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4	MS27039-1-24	Bolt																																																																							
41	QC5	Inspect work to Step 40																																																																							
42	KP	Pick: Packing Kit (Note: D3195-041/043, D3196-1/-3/-4 are on BOM as material from Steps 3-6, 35-36) <table border="0"> <tr> <td><u>Qty</u></td> <td><u>Part Number</u></td> <td><u>Description</u></td> <td><u>Batch</u></td> </tr> <tr> <td>2</td> <td>D3195-041</td> <td>Bracket</td> <td></td> </tr> <tr> <td>2</td> <td>D3195-043</td> <td>Bracket</td> <td></td> </tr> <tr> <td>1</td> <td>D3196-1</td> <td>Bar</td> <td></td> </tr> <tr> <td>1</td> <td>D3196-3</td> <td>Bar</td> <td></td> </tr> <tr> <td>1</td> <td>D3196-4</td> <td>Bar</td> <td></td> </tr> <tr> <td>2</td> <td>D3197-041</td> <td>Bar</td> <td></td> </tr> <tr> <td>4</td> <td>D3198-1</td> <td>Fitting</td> <td></td> </tr> <tr> <td>18</td> <td>D3215-041</td> <td>Harness Assembly</td> <td></td> </tr> <tr> <td>4</td> <td>D3215-043</td> <td>Harness Assembly</td> <td></td> </tr> <tr> <td>4</td> <td>AN4-5A</td> <td>Bolt</td> <td></td> </tr> <tr> <td>4</td> <td>AN4-13A</td> <td>Bolt</td> <td></td> </tr> <tr> <td>8</td> <td>AN4-20A</td> <td>Bolt</td> <td></td> </tr> <tr> <td>20</td> <td>AN960JD416</td> <td>Washer</td> <td></td> </tr> <tr> <td>12</td> <td>MS21042L4</td> <td>Nut (or -4)</td> <td></td> </tr> <tr> <td>8</td> <td>MS24694-S152</td> <td>Screw</td> <td></td> </tr> <tr> <td>2</td> <td>D3268-1</td> <td>Placard</td> <td></td> </tr> </table>	<u>Qty</u>	<u>Part Number</u>	<u>Description</u>	<u>Batch</u>	2	D3195-041	Bracket		2	D3195-043	Bracket		1	D3196-1	Bar		1	D3196-3	Bar		1	D3196-4	Bar		2	D3197-041	Bar		4	D3198-1	Fitting		18	D3215-041	Harness Assembly		4	D3215-043	Harness Assembly		4	AN4-5A	Bolt		4	AN4-13A	Bolt		8	AN4-20A	Bolt		20	AN960JD416	Washer		12	MS21042L4	Nut (or -4)		8	MS24694-S152	Screw		2	D3268-1	Placard				
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43	QC4	Inspect Kit 100% for Completeness on the W/O																																																																							
44	PK	Identify and pack for shipping as per PPP D412-702-011 ID + water K D3196-4		20 05/10/05	15																																																																				

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Mfg / Design Mgr	Approval QC Inspector

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Design Mgr	Approval QC Inspector
			Initial Design Mgr	Action Description Design Mgr	Sign & Date			

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

NOTE: Date & initial all entries

QA: N/C Closed: _____ Date: _____

DART AEROSPACE LTD		Work Order:	24131
Description: Dart 13-Man Shoulder Harness Kit (205/212/214/412)		Part Number:	D3196-4 D412-702-011
04.02.23			
Dwg: D3195 Rev. A; D3196 Rev. A; D3197 Rev. A1		Qty:	15 Kit(s)
Ref: D412-702 Rev.A page 9			Page 4 of 4

Step	Location	Procedure	By	Date	Qty
45	AC	Cost / part 29.36	Sur	05-10-26	15
46	DC	Close W/O 29.13 Inspect Level 21	DP	05/10/26	15

Rev	Date	Change	Revised By	Approved
A	03.10.17	New issue	KJ/RF	

RELEASED
04.01.08

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Mfg / Design Mgr	Approval QC Inspector

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Design Mgr	Approval QC Inspector
			Initial Design Mgr	Action Description Design Mgr	Sign & Date			

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

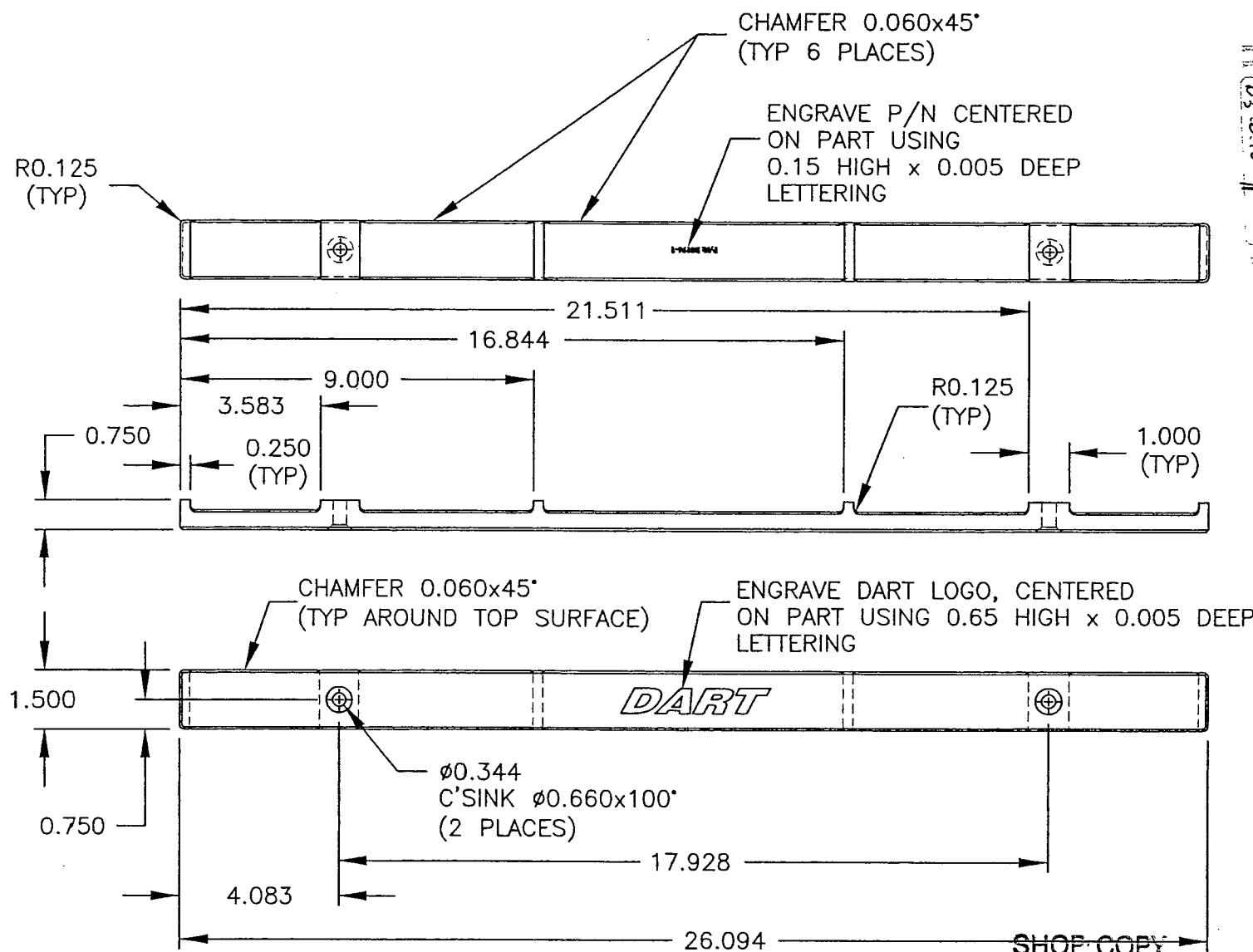
NOTE: Date & initial all entries

QA: N/C Closed: _____ Date: _____



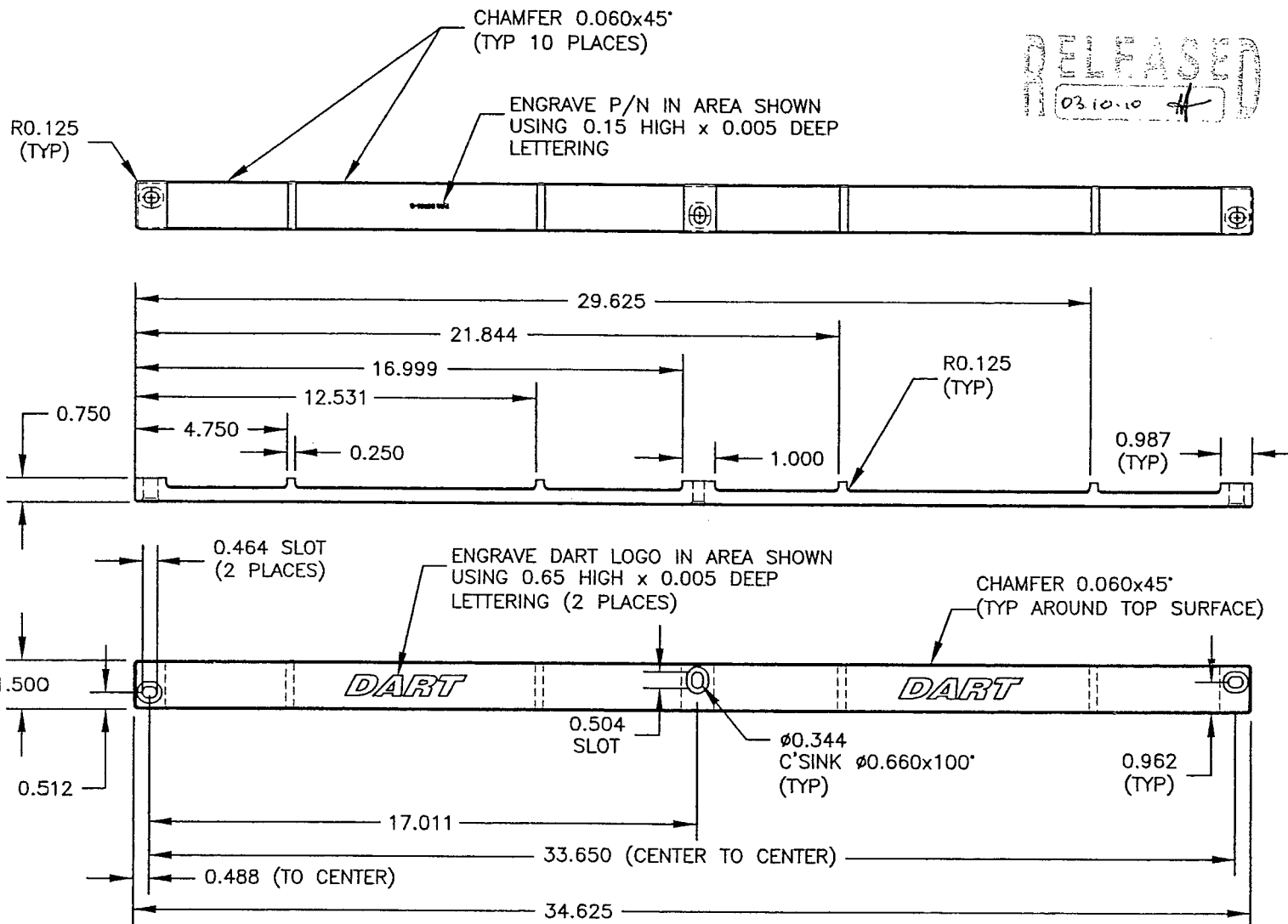
DESIGN	DRAWN BY	DART AEROSPACE LTD HAMKESBURY, ONTARIO, CANADA		
CHECKED	APPROVED	DRAWING NO.	REV. A	
DATE		TITLE	SHEET 1 OF 3	SCALE
03.06.25		BAR		1:4
A	03.06.25	NEW ISSUE		

RELEASED
03.06.25



D3196-1 BAR

- 1) MATERIAL: 6061-T6/T651 ALUMINUM (QQ-A-200/8 OR QQ-A-225/8) (REF DART SPEC. M6061T6B)
- 2) BREAK ALL SHARP EDGES 0.005 TO 0.010
- 3) FINISH: POWDER COAT GREY SANDTEX (4.3.5.6) PER DART QSI 005 4.3
- 4) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 5) ALL DIMENSIONS ARE IN INCHES



D3196-3 BAR

- 1) MATERIAL: 6061-T6/T651 ALUMINUM (QQ-A-200/8 OR QQ-A-225/8) (REF DART SPEC. M6061T6B)
- 2) BREAK ALL SHARP EDGES 0.005 TO 0.010
- 3) FINISH: POWDER COAT GREY SANDTEX (4.3.5.6) PER DART QSI 005 4.3
- 4) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 5) ALL DIMENSIONS ARE IN INCHES

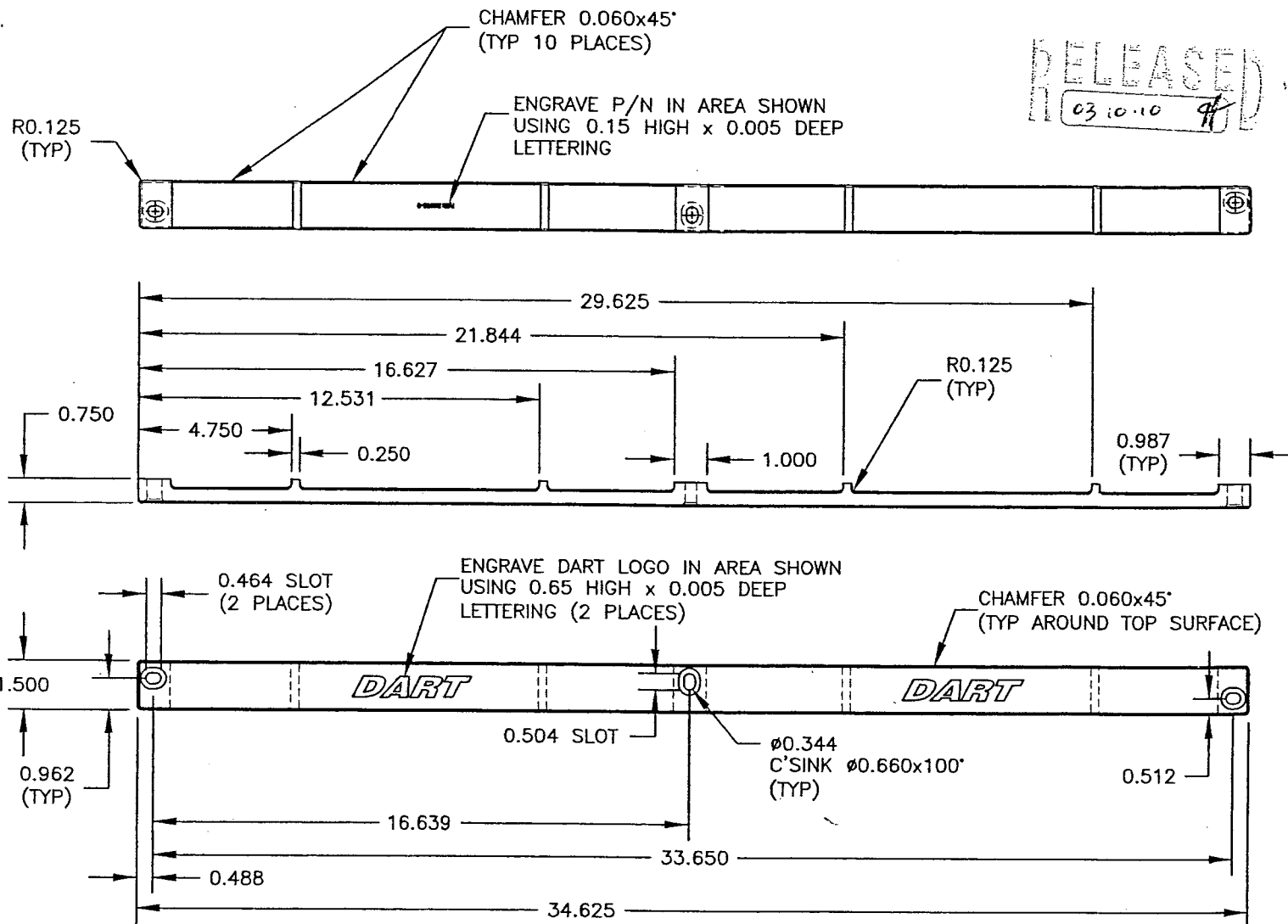
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WITHOUT NOTICE

WORK ORDER
NO. 24131

RELEASED
03.10.10



DESIGN	DRAWN BY	DART AEROSPACE LTD
CHECKED	APPROVED	HAWKESBURY, ONTARIO, CANADA
DATE	DRAWING NO.	REV. A
03.06.25	D3196	SHEET 2 OF 3
	TITLE	SCALE
	BAR	1:5



D3196-4 BAR

- 1) MATERIAL: 6061-T6/T651 ALUMINUM (QQ-A-200/8 OR QQ-A-225/8)
(REF DART SPEC. M6061T6B)
- 2) BREAK ALL SHARP EDGES 0.005 TO 0.010
- 3) FINISH: POWDER COAT GREY SANDTEX (4.3.5.6) PER DART QSI 005 4.3
- 4) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 5) ALL DIMENSIONS ARE IN INCHES

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WITHOUT NOTICE

WORK ORDER

NO. 24131

RELEASED
03.10.10

DART

QA COPY ISSUED

DESIGN	DRAWN BY	DART AEROSPACE LTD
03.06.25	CP	HAWKESBURY, ONTARIO, CANADA
CHECKED	APPROVED	DRAWING NO.
CP	CP	D3196
DATE	TITLE	SCALE
03.06.25	BAR	1:5
		SHEET 3 OF 3
		REV. A

DART AEROSPACE LTD		Work Order:	24131
Description: Bar		Part Number:	D3196-4
Inspection Dwg: D3196 Rev: A		Page 1 of 1	

FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article ☐ Prototype

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
34.625	+/-0.010	34.625	/		Tape	
33.650	+/-0.010	33.650	/		Tape	
16.639	+/-0.010	16.640	/		Tape	
0.488	+/-0.010	.492	/			
0.962	+/-0.005	.957	/			
0.464	+/-0.010	.464	/			
0.504	+/-0.010	.504	/			
Ø0.344	+0.005/-0.000	Ø.346	/			
Ø0.660 x 100°	+/-0.010	.655 x 100°	/			
0.512	+/-0.005	.516	/			
0.060 x 45°	+/-0.010	.060 x 45°	/			
4.750	+/-0.010	4.755	/			
12.531	+/-0.010	12.530	/		Tape	
16.627	+/-0.010	16.625	/		Tape	
21.844	+/-0.010	21.840	/		Tape	
29.625	+/-0.010	29.625	/			
0.250	+/-0.010	.250	/			
1.000	+/-0.010	1.001	/			
R0.125	+/-0.010	R.125	/			
0.987	+/-0.010	.988	/			

Measured by: SA	Audited by: JG	Prototype Approval:	N/A
Date: 05.09.11	Date: 05.09.11	Date:	N/A

Rev	Date	Change	Revised by	Approved
A	04.04.20	New Issue (P/O D412-702-011)	KJ/RF	JF

RELEASED

04.04.20

Job Costing Report

Dart Aerospace Ltd.
Hawkesbury

Aug 30, 2005
07:42 am

Work Order No : 0024131
Project Name : D3196-4
Project For : WK538
Work Order Type : Main
Main WO Number :
House Part Number : D3196-4
Description : Bar
Manufactured : Yes
Amount Req'd : 15
Amount Done : 0
Start Date : 08-29-05
Est Finish Date : 09-21-05
Act Finish Date :
Drawings Req'd : No
Ok for Approval :
Approval Rec'd :

Department Code:
Burden Flags : NNNNNNNN
WO Status : Open
Invoice State : Not Invoiced
Invoice Date :
Invoice Number :
Invoice Amount : 0.00
Order Entry No :
OE Value : 0.00
Est Mark Up : 0.000%
Actual Mark Up : 0.000%
\$0 Posted to Finished Goods

	Estimated	Actual	Var. %	Posted	To Post
Material Cost :	0.00	0.00	0.00	0.00	0.00
Engineering Hours :	0.00	0.00	0.00		
Engineering Cost :	0.00	0.00	0.00	0.00	0.00
Production Hours :	0.00	0.00	0.00		
Production Cost :	0.00	0.00	0.00	0.00	0.00
Packaging Hours :	0.00	0.00	0.00		
Packaging Cost :	0.00	0.00	0.00	0.00	0.00
OverHead Hours :	0.00	0.00	0.00		
OverHead Cost :	0.00	0.00	0.00	0.00	0.00
CNC Hours :	0.00	0.00	0.00		
CNC :	0.00	0.00	0.00	0.00	0.00
Misc. Hours :	0.00	0.00	0.00		
Misc. :	0.00	0.00	0.00	0.00	0.00
Burden :	0.00	0.00	0.00		
Total Cost :	0.00	0.00	0.00		
Mark up :	0.000	0.000			
Selling Cost :	0.00	0.00			

	Estimated	Actual
Labour Hrs/Amount Done :	0.00	0.00
Profits/(Loss) :	0.00	0.00